REMARKS

Claims 41-44, 46, 47 and 52-57 were examined in the Office Action under reply. The Examiner has allowed claims 41-44, 52, 53, 55 and 56 but objects to claims 46, 47, 54 and 57, requesting applicants file a new sequence listing with the amino acids specified in claim 54. Accordingly, applicants are providing a sequence listing in paper copy and computer-readable form. Claim 54 has been amended to refer to the new sequence identification number.

Additionally, the Examiner requested that applicants amend Figures 5 and 7, as well as the specification, to refer to the subparts depicted. Applicants are submitting marked-up informal drawings designating subparts and will provide formal drawings upon an indication of allowance of the application. The specification has also been amended herein to recite the subparts depicted in Figures 5 and 7.

Accordingly, allowance is believed to be in order and an early notification to that effect would be appreciated.

Please direct all further communications in this application to:

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Respectfully submitted,

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VERSION WITH MARKINGS TO SHOW CHANGES MADE

In the Specification:

The paragraph beginning at page 4, line 13 has been replaced with the following rewritten paragraph:

[Fig. 5 presents] Figs. 5A and 5B present bar graphs of epitope mapping showing the binding of serum from sheep immunized with a peptide that spanned HCV1 E2HV region to 8-mer overlapping mimotopes that spanned the same region.

The paragraph beginning at page 4, line 18 has been replaced with the following rewritten paragraph:

[Fig. 7 presents] Figs. 7A-7C present bar graphs of epitope mapping showing the binding of human serum albumin, prealbumin, and TBG to overlapping peptides of the E2HV region.

The paragraph beginning at page 30, line 25 has been replaced with the following rewritten paragraph:

The results of the screening using sheep serum IgG s1634-2 and s1635-2 from sheep immunized with the conjugated 30-mer are shown in [Fig. 5] Figs. 5A and 5B. The results indicate that sheep 1634-2 IgG reacts with the minimum epitope ^{400}VSLLA^{404}. IgG from sheep 1635-2 has a broader reactivity profile--the sera reacts with the peptides containing the minimum ^{400}VSLLA^{404} epitope, and in addition, peptides containing the minimum epitopes ^{401}SLLAPGA^{407} and ^{403}LAPGA^{407}. Thus, the IgG preparation from sheep immunized with the 30-mer peptide of E2HV is reactive with linear epitope(s) between amino acids 400 to 407.

The paragraph beginning at page 42, line 28 has been replaced with the following rewritten paragraph:

The binding of three serum proteins, human prealbumin, human serum albumin, and thyroid binding globulin (TBG) to overlapping peptides spanning E2HV was performed. Octamer bearing pins were prepared as described in Example 1. The binding of the designated serum proteins to the octamers was determined by an ELISA assay, using antibodies directed to the specific proteins. Controls were run in the absence of the serum proteins but in the presence of the respective antibodies. The results, shown as difference plots, are shown in [Fig. 7] Figs. 7A-7C. Based upon the results, it appears that transthyretin binds to at least one minimum epitope in the hypervariable region. In addition, the results are suggestive that TBG binds to two minimum epitopes, one of which encompasses the SLF--G motif.

In the Claims:

Claim 54 has been amended as follows:

54. (Twice amended) The immunogenic polypeptide of claim 53, wherein

Xaa at position 1 is an amino acid selected from the group consisting of Ala, Ser, Glu, Gln, Gly, His, Thr, Asp, Arg, Lys, Asn, and Val as depicted in SEQ ID NO:135;

Xaa at position 3 is an amino acid selected from the group consisting of Tyr, Gln, Arg, His, Thr, Asn, Ile, Leu, and Ser as depicted in SEQ ID NO:135;

Xaa at position 8 is an amino acid selected from the group consisting of Ala, Gln, Val, Ile, Asn, Thr, Ser, Lys, Glu, Arg, and His as depicted in SEQ ID NO:135;

Xaa at position 14 is an amino acid selected from the group consisting of Asn, Arg, His, Lys, Ala, Tyr, Ser, Phe, Leu, Gln, and Thr as depicted in SEQ ID NO:135;

Xaa at position 16 is an amino acid selected from the group consisting of Phe, Val, Ile, and Leu as depicted in SEQ ID NO:135;

Xaa at position 17 is an amino acid selected from the group consisting of Val, Ala, Thr, Ser, and Pro as depicted in SEQ ID NO:135;

Xaa at position 21 is an amino acid selected from the group consisting of Arg, Ser, Gly, Thr, Asn, Met, Ala, Leu, Thr, Gln, Asp, Lys, and Glu as depicted in SEQ ID NO:135;

Xaa at position 22 is an amino acid selected from the group consisting of Ser, Pro, Leu, Val, His, Arg, Tyr, Gln, Thr, and Ala as depicted in SEQ ID NO:135;

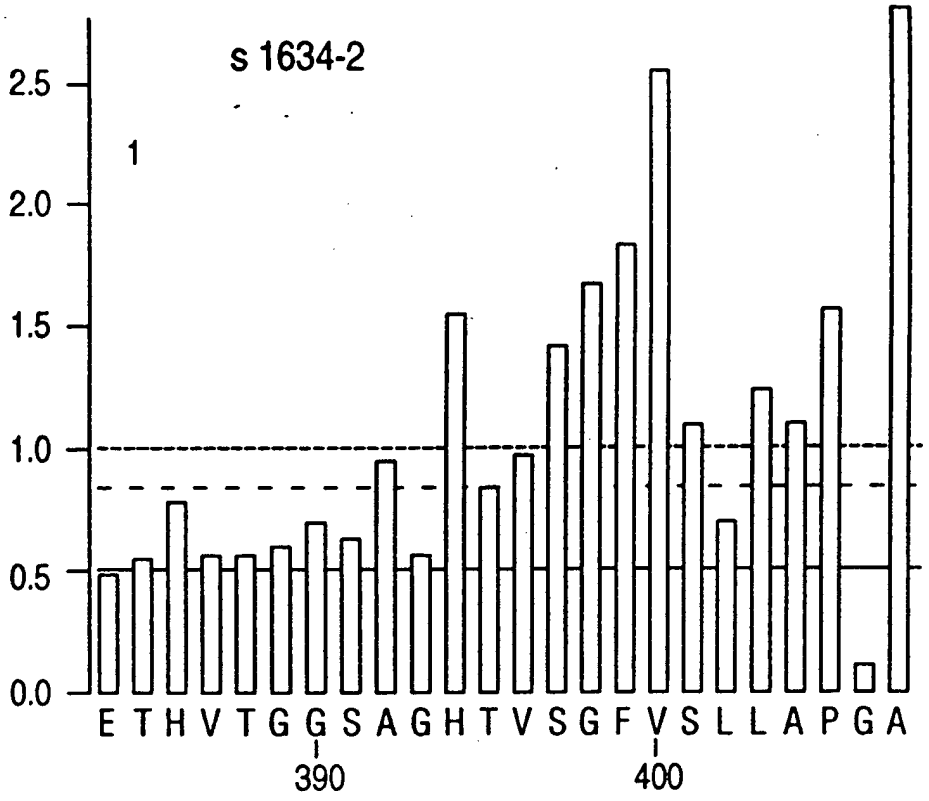
Xaa at position 24 is an amino acid selected from the group consisting of Ala, Ser, and Pro as depicted in SEQ ID NO:135; and

Xaa at position 27 is an amino acid selected from the group consisting of Asn, Asp, Lys, Arg, Thr, and Glu as depicted in SEQ ID NO:135.

In the Drawings:

Figures 5 and 7 have been amended as indicated in the appended drawings.

A.


s 1634-2
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2.0
1.5
1.0
0.5
0.0
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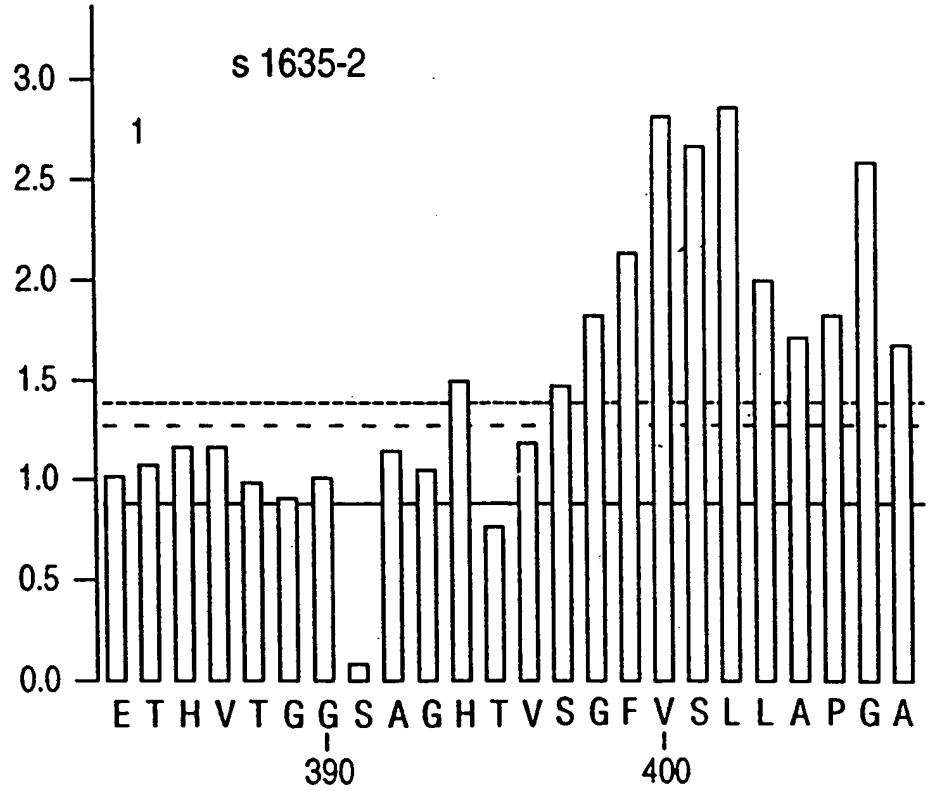
390
400

B.


s 1635-2
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2.5
2.0
1.5
1.0
0.5
0.0
E T H V T G G S A G H T V S G F V S L L A P G A
390
400

FIG. 5

54. (Twice amended) The immunogenic polypeptide of claim 53, wherein

Xaa at position 1 is an amino acid selected from the group consisting of Ala, Ser, Glu, Gln, Gly, His, Thr, Asp, Arg, Lys, Asn, and Val as depicted in SEQ ID NO:135;

Xaa at position 3 is an amino acid selected from the group consisting of Tyr, Gln, Arg, His, Thr, Asn, Ile, Leu, and Ser as depicted in SEQ ID NO:135;

Xaa at position 8 is an amino acid selected from the group consisting of Ala, Gln, Val, Ile, Asn, Thr, Ser, Lys, Glu, Arg, and His as depicted in SEQ ID NO:135;

Xaa at position 14 is an amino acid selected from the group consisting of Asn, Arg, His, Lys, Ala, Tyr, Ser, Phe, Leu, Gln, and Thr as depicted in SEQ ID NO:135;

Xaa at position 16 is an amino acid selected from the group consisting of Phe, Val, Ile, and Leu as depicted in SEQ ID NO:135;

Xaa at position 17 is an amino acid selected from the group consisting of Val, Ala, Thr, Ser, and Pro as depicted in SEQ ID NO:135;

Xaa at position 21 is an amino acid selected from the group consisting of Arg, Ser, Gly, Thr, Asn, Met, Ala, Leu, Thr, Gln, Asp, Lys, and Glu as depicted in SEQ ID NO:135;

Xaa at position 22 is an amino acid selected from the group consisting of Ser, Pro, Leu, Val, His, Arg, Tyr, Gln, Thr, and Ala as depicted in SEQ ID NO:135;

Xaa at position 24 is an amino acid selected from the group consisting of Ala, Ser, and Pro as depicted in SEQ ID NO:135; and

Xaa at position 27 is an amino acid selected from the group consisting of Asn, Asp, Lys, Arg, Thr, and Glu as depicted in SEQ ID NO:135.

55. The immunogenic polypeptide of claim 42, wherein the carrier is diphtheria toxoid.

56. The immunogenic composition of claim 52, wherein the carrier is diphtheria toxoid.

57. The immunogenic polypeptide of claim 54 linked to a suitable carrier.